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Counsel for Defendants

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA, SAN FRANCISCO DIVISION

IN RE GOOGLE PLAY CONSUMER ANTITRUST LITIGATION

THIS DOCUMENT RELATES TO:

In re Google Play Consumer Antitrust Litigation, Case No. 3:20-cv-05761-JD

Case No. 3:21-md-02981-JD

REDACTED-PUBLIC VERSION

DEFENDANTS' REPLY IN SUPPORT OF DAUBERT MOTION TO EXCLUDE TESTIMONY OF DR. HAL J. SINGER ON CLASS CERTIFICATION

Date: August 4, 2022
Time: 10:00 a.m.
Judge: Hon. James Donato
Courtroom: 11, 19th Floor, 450 Golden Gate Ave, San Francisco, California, 94102

Plaintiffs' Opposition reveals the deception in Dr. Singer's "deceptively straightforward" pass-through formula, Singer Reply Rep. at ¶ 72: the formula is "straightforward" only because it ignores real-world data, accepted economic models, and focal point pricing.

For decades, courts have recognized "the difficulties and uncertainties involved" in pass-through analysis, *Illinois Brick Co. v. Illinois*, 431 U.S. 720, 743 (1977), which makes proof of antitrust impact "more complex." *In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D. 478, 499 (N.D. Cal. 2008). According to Plaintiffs, however, pass-through is actually "simple." Opp. at 6. To determine the pass-through rate for an app based on the "Thomas & Friends" children's television series, Dr. Singer divided the number of in-app purchases for that app by the total number of items sold in the thousands of other apps in the "Games" category—including "Doom," which has a "Violence, Blood and Gore" warning, and "Poker—Texas Hold 'Em." He then subtracted that percentage from 1 and claims the difference is the pass-through rate. That's it.

Plaintiffs compare this formula to $E=MC^2$, Opp. at 6, but it is "junk science." *In re Capacitors Antitrust Litig*. (No. III), No. 14-CV-03264-JD, 2018 WL 5980139, at *6 (N.D. Cal. Nov. 14, 2018). The accepted way to determine whether developers would have changed prices if service fees were lower is to analyze data on whether developers changed prices when service fees actually went down, as Google's expert did. Dr. Singer has performed that kind of analysis in other cases, but he did not do so here. Instead, he predicted the prices developers would charge by counting how much they sold compared to apps that are not substitutes. Dr. Singer has never used this formula to calculate pass-through before and Plaintiffs cite no case where a court has permitted an economist to testify about pass-through using any method remotely like it. Plaintiffs have not met their burden to show why this Court should be the first.

First, Dr. Singer's pass-through formula models costs contrary to an accepted economic principle set forth in his own report: when fees that are a percentage of a firm's prices—so-called *ad valorem* costs—change, the effect on prices depends on the firm's marginal costs that have not changed. Dr. Singer concedes that he has not estimated developers' marginal costs. That should be the end of the matter: if prices depend on costs, Dr. Singer's formula cannot reliably predict developers' prices when it is missing an input required to model their costs. Plaintiffs' mantra that

Dr. Singer has used a "logit model" means nothing. Dr. Singer's "logit model" is just the formula that Plaintiffs do not argue accounts for developers' marginal costs distinct from service fees.

Second, Plaintiffs cannot answer why real-world data show the opposite of what Dr. Singer's formula predicts. Dr. Singer's formula predicts pass-through by *all* developers, but, in fact, almost no developers who paid lower service fees in the real world reduced prices. Plaintiffs' speculation about "steering" to platforms *other than* Google Play cannot fill this gulf between Dr. Singer's theory and reality regarding prices on Play. Dr. Singer testified that his formula predicts pass-through even without steering and that he has not studied how steering affects pass-through.

Third, Dr. Singer's logit model is so far off because a fundamental assumption of that model is concededly missing. Dr. Singer testified that a logit model assumes all products in the model are substitutes, but admitted he is not offering the opinion that all apps in each category his model uses are substitutes. Plaintiffs do not argue the apps in each category are substitutes.

Fourth, Plaintiffs do not seriously dispute that Dr. Singer has not accounted for focal point pricing, which has led multiple courts in this District to reject expert testimony in antitrust cases. Plaintiffs simply argue that some developers do not use focal point pricing. That says nothing about how Dr. Singer accounts for the developers who *do* use focal point pricing. He doesn't.

Finally, Plaintiffs also have not demonstrated that Dr. Singer's opinions regarding Play Points are reliable. Plaintiffs do not dispute that most users did not enroll in or redeem Play Points or that Dr. Singer has no model to determine whether each consumer would have done so in a but-for world. Plaintiffs cite no analysis by Dr. Singer to support the bare assertion that higher subsidies would have driven enrollment to "near-universal" levels, and cite no evidence to support their speculation that Google would have enrolled all users by default. Opp. at 4.

I. DR. SINGER'S PASS-THROUGH FORMULA IS NOT RELIABLE.

A. Dr. Singer's Pass-Through Formula Contradicts Accepted Economic Principles Regarding How Changes In Service Fees Will Affect Prices.

If "prices depend on costs," Mot. Ex. 2, Singer Rep. ¶ 223, then Dr. Singer's formula for predicting developers' prices must correctly model their costs. But Dr. Singer's pass-through formula models developers' costs contrary to accepted economics he *describes in his own report*.

Google's service fees are a percentage of the price that developers charge. In economics, a change in a cost calculated that way affects prices proportionally to the firm's marginal costs. Mot. Ex. 2, Singer Rep. ¶ 225 & n. 495; Mot. Ex. 1, Singer Dep. at 105:8–106:3, 107:23–109:14. Dr. Singer testified that "the pass-through rate is going to be proportional to the other marginal costs," Mot. Ex. 1, Singer Dep. at 112:13–113:3; *see also id.* at 105:8–106:3, 107:23–109:14, and that "one input into the generally accepted economic model of how the profit-maximizing developer would set [] prices is the marginal costs other than the service fee." *Id.* at 108:17–25. In light of this testimony, it is puzzling that Plaintiffs argue that Google "can point to no basis in economics" for "the distinction between per-unit costs (costs that are the same regardless of price) and *ad valorem* costs (expressed as a percentage of price)." Opp. at 8. In Paragraph 225 of his report, Dr. Singer uses different math to model each type of cost: the per-unit cost term "**C**" "is modified" to **C***, which is a proportion: $\boldsymbol{C / (1 - t)}$, where **C** is per-unit marginal costs and ***t*** is the service fee rate. Mot. Ex. 2, Singer Rep. at ¶ 225.

Dr. Singer testified that his pass-through formula does not account for this standard economic model: "Q. … in calculating how prices will be set in the but-for world based on a reduction of this service fee, … in the in-app purchase context, this calculation doesn't reference the developer's other marginal costs in any way? A. Correct…." Mot. Ex. 1, Singer Dep. at 186:6–18; *see also id.* at 124:18–127:13. In fact, there is no way that Dr. Singer's pass-through formula could account for developers' marginal costs because he has not even estimated any such costs for any developer. *Id.* at 90:20–91:2, 91:22–92:7. Plaintiffs get nowhere by arguing that an economist must still "choose a demand model" to operationalize the model in Paragraph 225. Opp. at 7. No matter what Dr. Singer needed to do to build a pass-through formula, he had to account for the accepted economic principle that changes in *ad valorem* fees will affect prices proportional to marginal costs. However, Dr. Singer has not even measured developers' marginal costs, let alone accounted for them. The Court can stop there.

B. Plaintiffs' Arguments About The "Logit Model" Do Not Change this Fact.

Plaintiffs attempt to defend Dr. Singer's formula as a "logit model." Opp. at 5–8. But what Plaintiffs call the "logit model" is just a simplified version of a formula described in a 2013

article. Mot. Ex. 10, Nathan H. Miller et al., *Using Cost Pass-Through to Calibrate Demand*, 118 Econ. Ltrs. 451, 451 (2013). Dr. Singer's regression "isn't measuring how a service fee change affects the price of an app or an in-app purchase." Mot. Ex. 1, 164:18–165:12. Rather, in the regression, "demand for a given App (or In-App Content) is modeled as a function of the price of that App (or the price of the In-App Content)." Mot. Ex. 2, Singer Rep. at ¶ 235; *see also* Mot. Ex. 1, at 164:10–17. Dr. Singer's regression thus measures what happens when prices change, not whether prices would change if service fees changed. Dr. Singer thus discards the regression's results when calculating pass-through, relying solely on his formula: **1 – an app's unit share of the category chosen by the developer**. That is all the "logit model" is. *See id.* at 116:14–117:9.

Plaintiffs' argument that "the logit demand model causes the absolute level of marginal costs to drop out of the equation," Opp. at 7, is exactly why the formula contradicts standard economics. The standard model in Paragraph 225 of Dr. Singer's report shows that whether a change in the *service fee* affects prices depends on the *level* of the developer's marginal costs. When those marginal costs "drop out of the equation," the equation loses an essential input. Plaintiffs cannot paper over this problem by arguing that a change in the service fee is a change in marginal costs. In the standard model, whether a change in the service fee changes the developer's cost structure depends on the developer's costs *other* than the service fee. That is why the expression **C / (1 - t)** includes separate terms for **C** (marginal costs) and **t** (the service fee rate). Dr. Singer's formula must account for both terms, but it concededly does not do so.

Dr. Singer's source for his "logit model" makes clear that the model does not account for a cost proportional to prices like Google's service fees. In explaining their "General Model," the 2013 article's authors state: "Now suppose that a ***per-unit tax*** is levied on each product in the model—the tax perturbs marginal costs and allows for the derivation of cost pass-through." Mot. Ex. 10, Miller at 452 (emphasis added). The article says nothing about percentage fees (or taxes). Plaintiffs suggest this does not matter, but they concede that the difference between per-unit costs and percentage fees "matters" because if a firm's marginal costs are zero, then a change in the service fee will not result in a price increase. Opp. at 8.

Plaintiffs do not argue that *no* developer's marginal costs are zero. Reversing their burden,

Plaintiffs instead argue that *Google* has identified "zero evidence that any developer actually faces zero marginal costs." *Id*. That is incorrect. One of Dr. Singer's key sources assumes that video game developers have "no marginal cost." Jean-Charles Rochet & Jean Tirole, Platform Competition in Two-Sided Markets, 1(4) *European Economic Association* 990, 1012 (2003). Another of Dr. Singer's sources states that the "replication cost of digital goods is zero." Mot. Ex. 5 at 12. Dr. Burtis similarly opines that "[f]or some apps, subscriptions, and IAPs, marginal costs are likely to be zero or close to zero." Mot. Ex. 3, Burtis Rep. at ¶ 143 & n. 151. In response, Plaintiffs rely on an article whose authors "*assume* that marginal costs may not *necessarily* be zero in a mobile app setting." Mot. Ex. 10 at 1474 (emphasis added). The article does not point to some economic consensus that *all* developers face non-zero marginal costs. There is none.

Plaintiffs also fail to show how Dr. Singer's formula accounts for what he calls "standard economics" that developers would have incentives to re-invest service-fee savings. Mot. at 8–9. Plaintiffs argue that "Dr. Singer's models are agnostic as to how developers choose to use the portion of savings that are *not* passed on." Opp. at 9 (emphasis added). That says nothing about what Dr. Singer did to determine whether developers would not pass on *any* portion of the savings because they would re-invest all of the savings. Dr. Singer's model does not address that issue.

None of Plaintiffs' cases referring to logit models, Opp. at 5, involved pass-through or a formula anything like the one Dr. Singer has used here. The court in *V5 Techs., LLC v. Switch, Ltd*., No. 2:17-cv-02349-KJD-NJK, 2020 WL 6688732 (D. Nev. Nov. 12, 2020), rejected a challenge to an expert's qualifications because he had not "taught a course specifically dedicated to Multinomial Logit Models." *Id.* at *2. That is not Google's argument here. Plaintiffs' other cases involved experts for consumer fraud plaintiffs who used logit in connection with surveys on "willingness to pay." *Allegra v. Luxottica Retail N. Am.*, No. 17-CV-5216 (PKC)(RLM), 2022 WL 42867, at *56 (E.D.N.Y. Jan. 5, 2022); *In re Dial Complete Mktg. & Sales Pracs. Litig*., 320 F.R.D. 326, 330 (D.N.H. 2017). Dr. Singer has not done that here.

Plaintiffs' lack of precedent for Dr. Singer's formula is hardly surprising given the well-recognized "difficulties with sophisticated statistical methodology" required to prove pass-though. *Illinois Brick*, 431 U.S. at 742. Plaintiffs' rejoinder that they are direct purchasers, Opp. at 9,

misses the point that courts have been skeptical of pass-through because "in the real economic world rather than an economist's hypothetical model, the latter's drastic simplifications generally must be abandoned." *Illinois Brick*, 431 U.S. at 742. So too here: Dr. Singer's "deceptively straightforward" formula is unreliable because it does not account for the accepted economic principle that changes in proportional fees affect prices proportional to a firm's marginal costs.

C. Dr. Singer's Formula Does Not Account For Real-World Data.

The proper way to examine what prices developers would have charged if they paid lower service fees is to examine the prices developers *actually* charged when they paid lower service fees. Google's expert Dr. Burtis did that analysis here and Dr. Singer has done that kind of analysis in prior cases. Mot. Ex. 1 at 134:25–135:5. Here, however, Dr. Singer did not analyze pass-through using actual pricing data, which show exactly the opposite of what his pass-through formula predicts. Dr. Singer's formula predicts pass-through for all developers, but real-world data show that only a tiny fraction of developers whose service fees Google reduced then reduced prices. Mot. Ex. 3, Burtis Rep. 103, Fig. 13. Plaintiffs engage in drive-by criticisms of Dr. Burtis' analysis showing this, Opp. at 10, but do not dispute that pass-through was the rare exception rather than the rule.[1] Plaintiffs say nothing about the analysis of Developer Plaintiffs' expert, Dr. Williams, which reached the same conclusion. Mot. Ex. 6, Williams Dep. at 312:21–314:2.

Plaintiffs assert that "Dr. Singer tested his model on significant actual data." Mot. at 10. Not quite. *First*, Plaintiffs cite Table 9 of Dr. Singer's report, Opp. at 11, which refers to six apps. Mot. Ex. 2, Singer Rep. at 115. That is not "significant actual data" or a counterpoint to Dr. Burtis' analysis of hundreds of thousands of data points. *Second*, Plaintiffs state that Dr. Singer ran "regressions on Google's transaction data to determine that the logit model was a good fit." Opp. at 10. But, as noted, those regressions do not measure pass-through.

[1] Plaintiffs argue that Dr. Burtis's analysis of Google's 2018 service fee reduction for subscriptions after the first year "ignores that Google Play provides no mechanism for a developer to change second-year subscription rates." Opp. at 10. Even if that were true, it says nothing about why pass-through was so rare following Google's 2021 rate reduction that applied to paid apps, IAPs, and subscriptions, or the fact that Dr. Burtis found the same lack of pass through when observing over 400,000 IAP SKUs, none of which were subscriptions. *See* Burtis Exs. 36, 50.

Third, Plaintiffs get nowhere by arguing that Dr. Singer has shown that sales taxes "are typically passed on in full." Opp. at 8. This case is not about sales taxes, which are highly regulated by state laws that, among other things, often require including sales taxes as a separate line item on an invoice. *See generally* Walter Hellerstein et al., *State and Local Taxation* 650 (10th ed. 2014). Moreover, Dr. Singer's analysis of sales taxes and prices for transactions via Google Play proves nothing about *developers*' pass-through because *Google* charges and collects sales taxes on those transactions. Mot. Ex. 12, Singer Rep. at n. 537. Thus, Dr. Singer's evidence is merely that *some* companies add sales tax to their customers' purchases. That unremarkable fact does not show that *all* developers would pass-through *service fees* or explain why the data show that almost no developers did so when Dr. Singer predicted that all of them would. Firms may approach service fees differently than sales taxes, which are not at issue here.

Plaintiffs fall back on arguing that "broader real-world experiments are not possible because of Google's continuous anticompetitive conduct." Opp. at 11. The only such conduct they identify is supposed limitations on "steering" users to other platforms using in-app communications. *Id.* This makes no sense. Developers can and sometimes do charge different prices in Play and on other platforms. Plaintiffs do not explain why pass-through of lower service fees on *Google Play* depends on in-app communications directing consumers to *other* platforms. Dr. Singer thus testified that his pass-through formula does not depend on steering: "Q. Okay. So fair to say, then, that the [] logit model pass-through formula that you've used in your report depends on steering? A. No, I don't think it depends on steering because we can come up with [] with explanations for how pass-through would occur in the presence of the anti-steering restraint." Mot. Ex. 1, Singer Dep. at 242:15–22. Dr. Singer "would expect pass-through regardless of the anti-steering restrictions," *id.* at 242:23–244:3, but that pass-through did not happen. Plaintiffs do not address that testimony or Dr. Singer's concession that he has not conducted any empirical analysis of steering's effect on pass-through rates. *Id.* at 239:2–13, 240:2–241:1, 246:3–12.

D. Dr. Singer's Pass-Through Formula Is Unreliable Because a Necessary Condition for the Formula is Concededly Missing.

One reason why Dr. Singer's "logit model" makes dramatically wrong predictions is that a

fundamental condition for the model is concededly missing. Dr. Singer testified that "one feature of logit demand is that all goods in the market where demand is being measured are substitutes." Mot. Ex. 1, Singer Dep. at 158:9–13. As his own source explains, in a logit model, "each good is a substitute for all others in the choice set." Gregory J. Werden & Luke M. Froeb, *The Antitrust Logit Model for Predicting Unilateral Competitive Effects*, 70 Antitrust L.J. 257 (2002). Dr. Singer treats "each of Google's 35 categories as a separate demand system," Opp. at 6, but Plaintiffs do not argue that all apps in each category are substitutes—nor could they, as the "Thomas" and "Doom" example illustrates. Dr. Singer even admitted he is not opining that apps in each category are substitutes. Mot. Ex. 1, Singer Dep. at 158:14–159:18. This is fatal to the reliability of his "logit model." If the prices of apps in a category are unrelated, then an app's share in that category cannot inform what price the app's developer would charge. Thus, Dr. Singer's model predicts very different pass-through rates for the same app in different categories, showing that the model's results are essentially arbitrary. *See* Mot. Ex. 3, Burtis Rep. ¶¶ 310–312 & Exs. 54–55; Mot. Ex. 2, Singer Reply Rep. ¶ 79.

Plaintiffs' rejoinder is that "Google's app categories are economically reasonable groupings of consumer preferences." Opp. at 12. But Plaintiffs do not define what that means or why it is meaningful to predict developers' prices or pass-through. Dr. Singer did not testify that one feature of logit demand is that all products are "economically reasonable groupings of consumer preferences," and Plaintiffs' own sources regarding logit models refer to "sets of substitutes," Opp. Ex. 13, at 52–59, and "Substitution Patterns." Opp. Ex. 8, at 45–49. Plaintiffs cite nothing for their assertion that evidence that "the logit model fits the data" is proof that the categories "defined the scope of substitution patterns for app users," Opp. at 13.

Dr. Singer cannot reliably testify based on a logit model where an assumption necessary to that model concededly does not hold.

E. <u>Dr. Singer's Pass-Through Formula Does Not Account For Focal Point Pricing.</u>

Dr. Singer's pass-through formula also is unreliable because it "does not adequately account for the effects of focal point pricing. . . ." *In re Lithium Ion Batteries Antitrust Litig.*, No. 13-MD-2420 YGR, 2018 WL 1156797, at *3 (N.D. Cal. Mar. 5, 2018). Dr. Singer testified, and

Plaintiffs do not dispute, that focal point pricing is a "well-established concept in economics," Mot. Ex. 1, Singer Dep. at 197:19–198:4, and "an important consideration here." *Id.* at 202:5–7. Nor do Plaintiffs contest that many developers use focal point pricing. Yet Plaintiffs do not point to any term in Dr. Singer's formula that addresses focal point pricing or any analysis by Dr. Singer showing that every developer would profit by breaking from focal point pricing.

Plaintiffs note that some developers do not use focal point pricing. *See* Opp. at 11, 12. That says nothing about whether developers who *do* use focal point pricing would stop doing so if they paid lower service fees. Dr. Singer has not analyzed that issue for any developer, let alone shown that all developers would have done so. As such, his pass-through "model does not provide a reliable method for determining but-for pricing in the presence of focal pricing." *In re Apple iPhone Antitrust Litig.*, No. 11-CV-6714-YGR, 2022 WL 1284104, at *8 (N.D. Cal. Mar. 29, 2022) (excluding expert testimony).

II. DR. SINGER'S SERVICE FEE FORMULA IS NOT RELIABLE.

Plaintiffs concede that Dr. Singer's formula for calculating Google's but-for service fee depends on his pass-through analysis. Mot. at 13. They argue that "pass-through is just one of many inputs" into Dr. Singer's service fee formula. Opp. at 14. But Plaintiffs do not dispute that, if a developer would not pass through a lower service fee, then Dr. Singer's service fee formula indicates that Google's service fee is competitive. Mot. at 4. Thus, pass-through is not just a variable: it drives Dr. Singer's result. Because Dr. Singer's pass-through formula is unreliable, his service fee formula is, too.[2] The service fee formula also is unreliable because it uses average inputs, including an average pass-through rate. Plaintiffs' argument that this "reflects market conditions," Opp. at 15, is a non-sequitur. If anything, the fact that Google reduced service fees for some developers and not others shows that individualized, not average, inputs are required.

III. DR. SINGER'S OPINIONS REGARDING PLAY POINTS ARE NOT RELIABLE.

Plaintiffs have not shown that Dr. Singer has a reliable method to support his alternative

[2] Plaintiffs do not dispute that Dr. Singer predicts that Google would have charged service fee rates for apps in the Entertainment and Music and Audio categories lower than his estimate of Google's costs. Mot. at 12–14. Plaintiffs point to a passing reference to costs ranging from [redacted] to [redacted], Opp. at 14, but that range extends at least as high as the service fee rate estimates.

theory that all consumers would have earned more valuable Play Points in the but-for world. Plaintiffs do not dispute that less than one-third of U.S. consumers participated in the Play Points program and only [redacted] of U.S. consumers redeemed Play Points. Mot. Ex. 3 at ¶ 355. Nor do Plaintiffs dispute that Dr. Singer has "not identified any model to determine which users would have signed up for [P]lay [P]oints in the but-for world," Mot. Ex. 1 at 288:11–16, 289:17–23, or "who would have used them." *Id.* at 297:8–21.

Plaintiffs do not identify any basis for what Dr. Singer testified was only a "fair assumption" that "every member of the putative class would have signed up for the [P]lay Points program and used [P]lay [P]oints." *Id.* at 298:22–299:10. Plaintiffs speculate that "Google could automatically enroll users to a more fulsome program," as some other companies do. Opp. at 4. But Plaintiffs cite no evidence—not one Google document and not one line of testimony—that Google would have done this. They do not explain or show why Google would have made a different decision than grocery stores that require customers to sign up for rewards programs.

Plaintiffs argue that Google would have offered an [redacted] discount, which "would drive near universal participation." Opp. at 4. But Plaintiffs do not point to any analysis supporting this assumption and Dr. Singer did none. Plaintiffs incorrectly argue that *In re Optical Disk Drive Antitrust Litigation*, No. 3:10-MD-2143, 2016 WL 467444 (N.D. Cal. Feb. 8, 2016), excuses this lack of evidence. The Court in *Optical Disk* merely held that consumers could have suffered injury if evidence showed that they paid more for a product than it was "objectively worth." *Id*. at *9. That principle does not support Dr. Singer's opinion here because that opinion depends on showing that consumers would have changed their behavior, not merely that they would have gotten a better deal. Even if Dr. Singer had proof that Play Points would have been more valuable in a but-for world, that would not prove impact on consumers who never earned any Play Points because they never enrolled in the program. Dr. Singer has no model or evidence to prove which consumers would have enrolled in a but-for world. *Optical Disk* did not hold that an expert does not need evidence to testify that consumers would have changed their behavior.

IV. CONCLUSION

The Court should exclude Dr. Hal Singer's testimony in adjudicating class certification.

Respectfully Submitted,

DATED: July 14, 2022

By: */s/ Justin P. Raphael*

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